

***Marobia*, a new genus of the Geometridae (Lepidoptera), with descriptions of two new species from Sumatra and the Philippines**

Rikio SATO

2-27-29, Shindori-nishi, Niigata, 950-2036 Japan

Abstract A new genus, *Marobia*, is established for the reception of *Deinotrichia dentigerata* Warren, 1899 and its allies. Two new species of the new genus are described from Sumatra and the Philippines.

Key words *Marobia*, new species, Geometridae, Sumatra, the Philippines.

Deinotrichia dentigerata Warren was described from Malaysia, based on one male taken at Penang in 1896 (Warren, 1899: 53). It has been treated as a member of the genus *Hypomecis* Hübner since I proposed the new combination (Sato, 1988). Holloway (1993) followed my treatment, but he pointed out the remarkable differences in the male and female genitalia from the other typical *Hypomecis* species, suggesting the need for a new genus to receive the species. During my study on the Sumatran Boarmiini for “*Heterocera sumatrana*”, I found two species mixed up under the name *dentigerata* and additionally discovered another undescribed species from the Philippines closely related to it. The three species clearly make a natural group, which should be separated from *Hypomecis* as a distinct genus. A new genus, *Marobia*, is therefore proposed with descriptions of two new species from Sumatra and the Philippines.

The following abbreviations are used to indicate the location of specimens. BMNH: The Natural History Museum, London. BMH: Bishop Museum, Honolulu. NSMT: National Science Museum, Tokyo. SMF: Senckenberg Museum, Frankfurt am Main. ZFMK: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn. RS: R. Sato collection, Niigata.

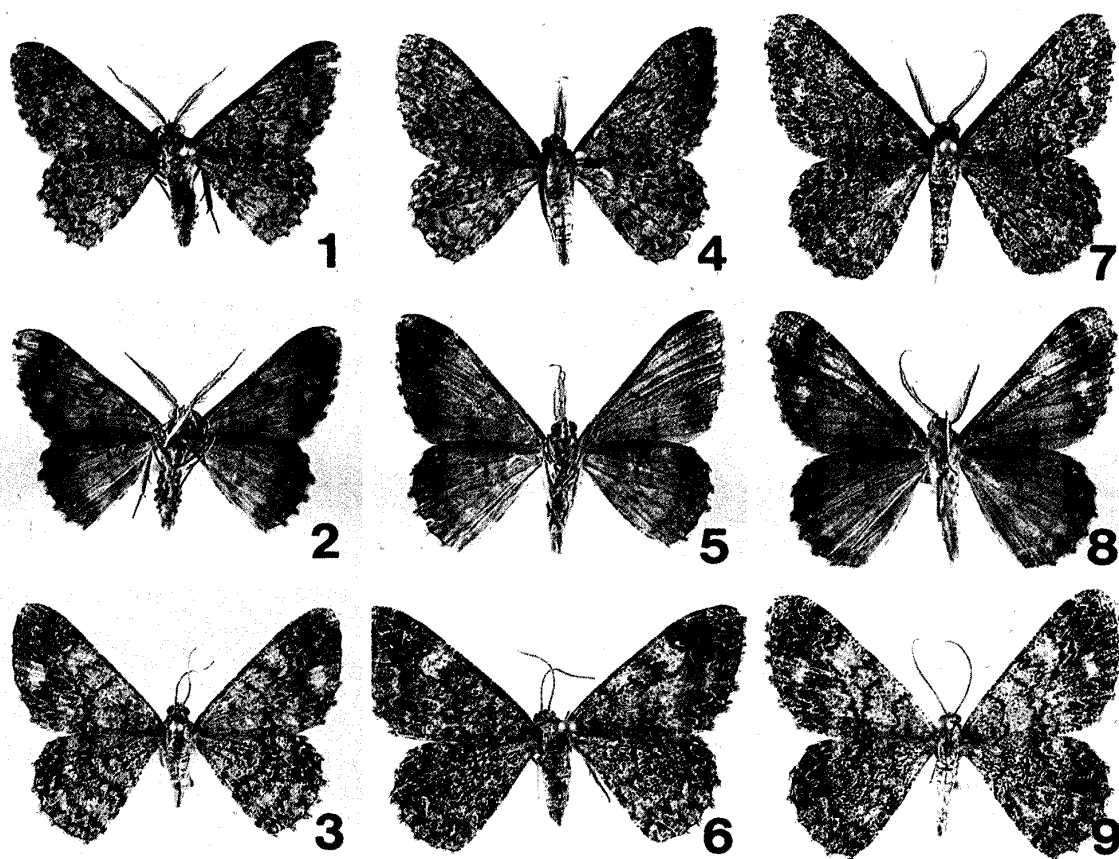
***Marobia* gen. nov.**

Type-species. *Deinotrichia dentigerata* Warren, 1899.

Gender. Feminine.

Closely related to *Hypomecis*, especially identical with it in the following characteristics. Male antenna bipectinate; each pecten arising from the distal end of a segment, very long, fully scaled dorsally, densely ciliate ventrally, with a terminal bristle. Male third abdominal sternite with setal comb. Hind tibia of male with hair-pencil. Forewing with fovea in male; 11-veined, R₁ anastomosing with Sc, then R₁ confluent R₂. Indistinguishable externally from *Hypomecis*, but with distinctive male and female genitalia, being much different from it at generic level.

Male genitalia. Valva concave at distal part of ventral margin, with two digitate processes spined apically, while in *Hypomecis* ventral margin of valva is almost smooth, with two spinous bands developed. Tegumen lacking a pair of processes, while in typical *Hypomecis*



Figs 1-9. *Marobia* spp. 1-2. *M. dentigerata* (Warren), ♂, Sumatra. 3. *Ditto*, ♀, Borneo. 4-5. *M. dairiensis* sp. n., holotype ♂, Sumatra. 6. *Ditto*, paratype ♀, Sumatra. 7-8. *M. philippinica* sp. n., holotype ♂, Negros I. 9. *Ditto*, paratype ♀, Negros I.

tegumen terminates in a pair of slender processes with a brush of setae apically. Aedeagus with three sclerotized structures, one dentate band, another broad band with a tip, and the other a lightly sclerotized process.

Female genitalia. Basal part of bursa copulatrix strongly convolute and scobinate. No signum. In *Hypomecis* bursa copulatrix not so strongly sclerotized, a weak signum present.

The following species belong to *Marobia*: *dentigerata* (Warren) from Peninsular Malaysia, Borneo and Sumatra, *dairiensis* sp. nov. from Sumatra and *philippinica* sp. nov. from the Philippines. Three species are very similar to one another in appearance. The genitalia of both sexes provide the only reliable diagnostic features in identifying them.

The name of this new genus is an anagram of *Boarmia*, which had been well known as the biggest genus in the Ennominae before it was sunk into *Hypomecis*.

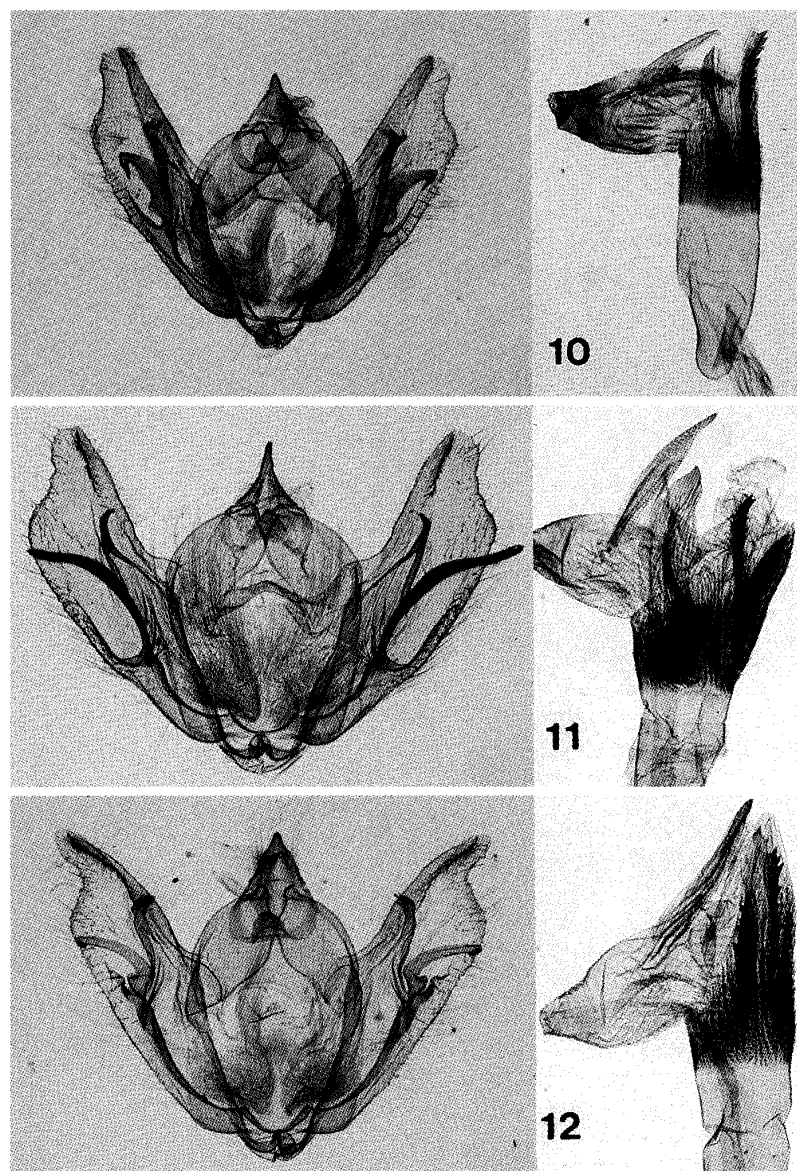
***Marobia dentigerata* (Warren), comb. nov. (Figs 1-3)**

Deinotrichia dentigerata Warren, 1899, *Novit. zool.* 6: 53.

Boarmia dentigerata: Prout, 1932: 106.

Hypomecis dentigerata: Sato, 1988: 130; Holloway, 1993: 244.

Length of forewing 15-17 mm. Wings grey, finely black-speckled. Lines finely and regular-

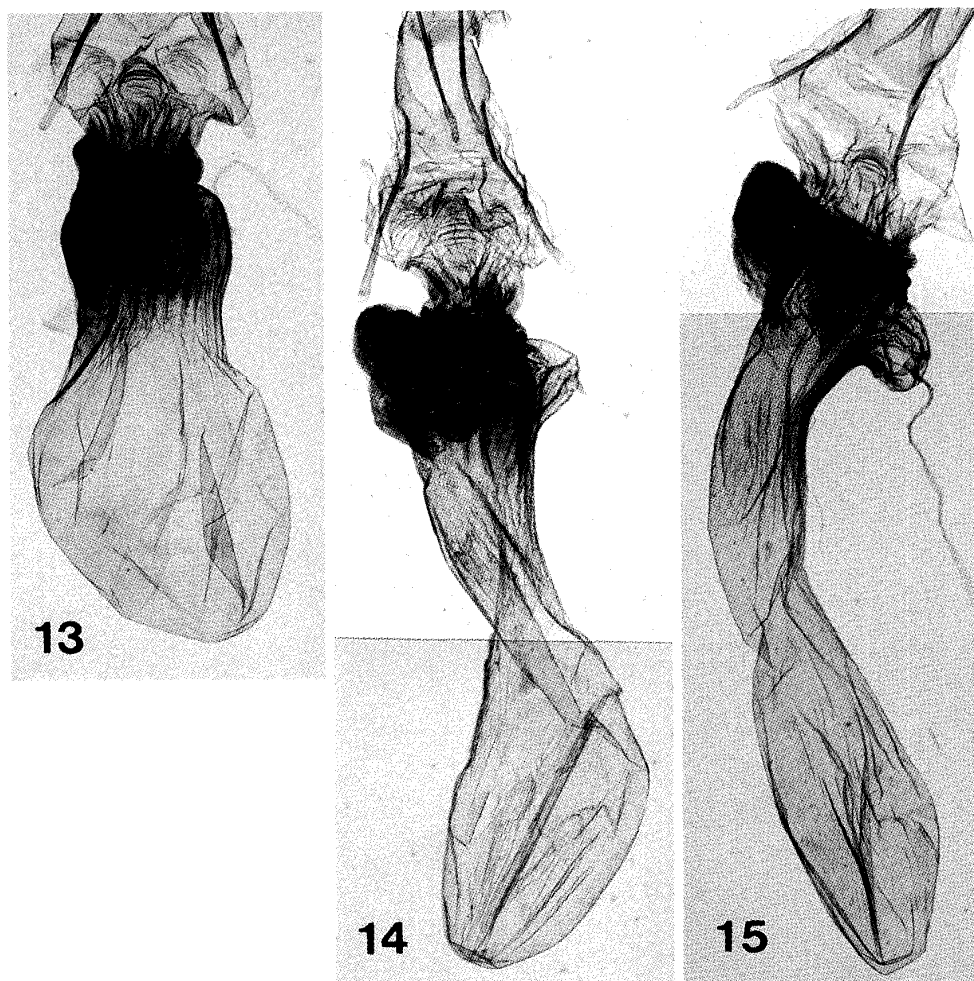


Figs 10-12. Male genitalia of *Marobia* spp. 10. *M. dentigerata* (Warren). Sumatra. RS-5199. 11. *M. daiensis* sp. n. Paratype. Sumatra. RS-5202. 12. *M. philippinica* sp. n. Negros I. RS-5200.

ly dentate. In some specimens forewing with a conspicuous pale central patch interrupting submarginal line between veins CuA_1 and M_2 . Underside paler than upperside, with broad smoky marginal band, postmedial line and discocellular spot.

Male genitalia (Fig. 10). Uncus triangular. Ventral margin of valva moderately concave distally. Two digitate processes of valva almost the same length; dorsal one slightly incurved with 6-10 short spines at apex; ventral one outcurved, a little broader than dorsal one, with 3-6 longer spines at apex. Aedeagus with a single dentate band, an elongate pointed band and a short lightly sclerotized process.

Female genitalia (Fig. 13). Medial part of sterigma round. Bursa copulatrix globular, basal one-third strongly sclerotized with complicated ribbing and convolution.



Figs 13-15. Female genitalia of *Marobia* spp. 13. *M. dentigerata* (Warren). Borneo. RS-5205. 14. *M. dairiensis* sp. n. Paratype. Sumatra. RS-5206. 15. *M. philippinica* sp. n. Paratype. RS-5210.

Material examined. Peninsular Malaysia : Perak, Taiping, 2 ♂, vii. 1987 (native collector). Borneo : Mt Bawang 300 m, 2 ♂ 1 ♀, x. 1989, 1 ♂, vi. 1990 (N. Nishikawa). Sumatra : Gunung Malayu 80 m, 1 ♀, 4-5. v, 1983 (E.W. Diehl) ; Sindar Raya II 400 m, 1 ♂, 13. iv. 1991 (E.W. Diehl). All in RS.

Geographical range. Peninsular Malaysia, Borneo, Sumatra.

***Marobia dairiensis* sp. nov.** (Figs 4-6)

Similar to *dentigerata*. Length of forewing 16-18 mm. A little larger in wing size and darker in colour, but not reliably distinguishable from *dentigerata* in appearance.

Male genitalia (Fig. 11). Uncus slenderer than congeners. Ventral margin of valva as in *dentigerata*. Dorsal digitate process of valva slightly incurved, with 3-5 short spines ; ventral one much longer than dorsal one, strongly outcurved, with 10-12 short, heavy spines along one side near apex. Aedeagus with two dentate bands, a broader pointed band, and a longer lightly sclerotized process.

Female genitalia (Fig. 14). Medial part of sterigma elliptical. Bursa copulatrix slenderer, basal half sclerotized, especially one-fourth with heavily sclerotized ribbing and convolution, with a roundish projection at right side posteriorly, from which ductus seminalis arising.

Holotype. ♂, Sumatra : Dairi West 600 m, 13. vii. 1983 (E.W. Diehl), BMNH. Paratypes. 4 ♂ 1 ♀, Sumatra : 1 ♂, Gunung Malayu 80 m, 13–14. viii. 1983, 1 ♂, Aek Kanapan 10 m, 11. vi. 1983, 1 ♀, Sindar Raya II 400 m, 10. iii. 1991, 1 ♂, *ditto*, 16. iii. 1991 (E.W. Diehl), Huta Padang 500 m, 1 ♂, 1–4. ix. 1991 (Graul & Schintlmeister), BMNH, NSMT & RS.

Geographical range. Sumatra.

***Marobia philippinica* sp. nov.** (Figs 7–9)

Also similar to *dentigerata* and the previous species. Length of forewing 18–21 mm. The largest moth in wing size, and most strongly tinged with black on both sides of wings among the three species.

Male genitalia (Fig. 12). Uncus as in *dentigerata*. Ventral margin of valva more deeply concave distally. Dorsal and ventral processes of valva nearly the same length ; the former weakly incurved, with 7–10 short spines, the latter strongly outcurved with 4–6 short, heavy spines along one side near apex. Aedeagus with two digitate bands and a broad sclerotized band as in the previous species, but the lightly sclerotized process longer.

Female genitalia (Fig. 15). Medial part of sterigma roundish as in *dentigerata*. Bursa copulatrix slenderer, with a larger projection from the right side than in the previous species.

Holotype. ♂, Philippines, Negros I., Mt Canlaon, x. 1995 (native collector), NSMT. Paratypes. 10 ♂ 1 ♀, Negros I., same data as the holotype, NSMT & RS ; 1 ♀, “Mt. Kanlaon, 900 m, 11. 8. 1996, leg. R. Brechlin”, ZFMK. 1 ♂, “Leyte, Mahaplag, Mt. Balocaue 600 m, 26. 2. 1987, local collector, coll. C. G. Treadaway” ; 1 ♂, *ditto*, 700 m, 31. 8. 1980, 1 ♂, *ditto*, 30. 8. 1984, ZFMK & SMF ; 7 ♂, Leyte I., 25–29. iii. 1995, 1 ♂, 25. xi. 1994 (native collector), RS. 3 ♂, Mindanao I., Mt Busa, x. 1996 (native collector), RS. 1 ♂, “P.I., MINDANAO, Z. DEL SUR, 24 km NW of Milbuk, nr. Lebak, 210–240 m, 8. VIII. 1958/Logged area/Light Trap, H.E. Milliron”, BMH.

Geographical range. Philippines (Negros, Leyte, Mindanao).

Acknowledgements

I wish to express my cordial thanks to Dr D. Stüning, Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Dr S. E. Miller, Department of Natural Science, Bishop Museum, Honolulu, for a loan of specimens and information on the data of the specimens in their museums. I deeply thank Dr H. Inoue, Prof. Emeritus of Otsuma Women's University, Iruma, for his critical reading through the manuscript.

References

- Holloway, J. D., 1993. The moths of Borneo : family Geometridae, subfamily Ennominae. *Malay. Nat. J.* **47** : 1–309, pls 1–19, 593 figs.
 Prout, L. B., 1932. On the Geometridae of Mt. Kinabalu. *J. fed. Malay. St. Mus.* **17** : 39–111.
 Sato, R., 1988. A new species of *Hypomecis* from Sumatra (Lepidoptera : Geometridae). *Heterocera sumatr.* **2** : 129–132.

Warren, W., 1899. New species and genera of the families Drepanulidae, Thyrididae, Uraniidae, Epiplemididae, and Geometridae from the Old-World regions. *Novit. zool.* **6**: 1-66.

摘 要

新属 *Marobia* とスマトラ・フィリピン産 2 新種の記載 (佐藤力夫)

Deinotrichia dentigerata Warren は、近年 *Hypomecis* 属に置かれてきたが (Sato, 1988; Holloway, 1993), Holloway は同属とは交尾器の形態がかなり異質であることを指摘し、新属の必要性を示唆した。このたび、スマトラ産の“*dentigerata*”に 2 種混じっていることが明らかになり、さらにフィリピン諸島のネグロス、レイテ、ミンダナオから近縁の別種が発見された。これら 3 種について研究を進めた結果、新属の設定が妥当と認められたので、2 新種とともに記載した。属名の *Marobia* は、*Hypomecis* のシノニムとして整理されるまで、長い間親しまれてきた属名 *Boarmia* のアナグラムである。

新属. *Marobia* Sato. 模式種: *Deinotrichia dentigerata* Warren, 1899.

新種. *M. dairiensis* Sato (スマトラ), *M. philippinica* Sato (ネグロス, レイテ, ミンダナオ).

(Accepted February 23, 1998)